

Applying Science & Technology to Drive State Flood Mitigation and Resilience Policy

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TEXAS A&M
UNIVERSITY at GALVESTON







Innovating for Change



Innovating for Change



Knowledge

Action

Innovating for Change



Knowledge

Action



Innovating for Change



1. Data Analytics

Knowledge



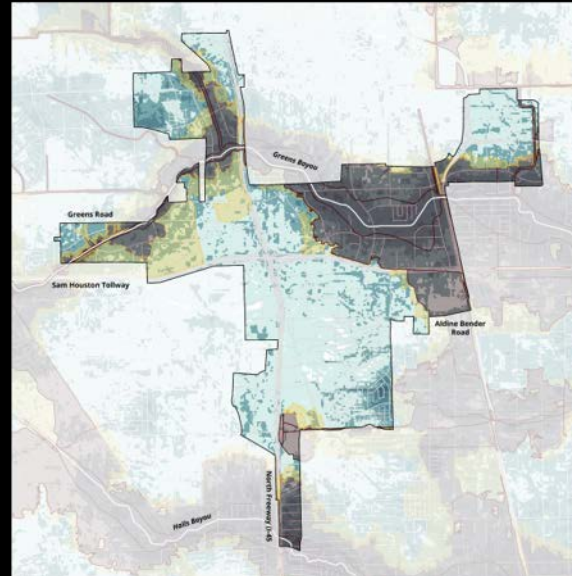
Action

Innovating for Change



1. Data Analytics

Knowledge



Action

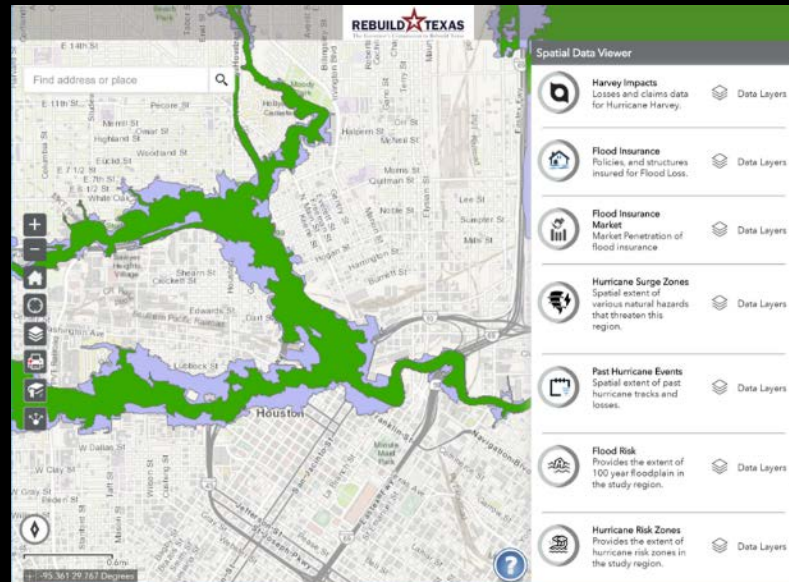
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1. Data Analytics



2. Visualization



Knowledge

Action

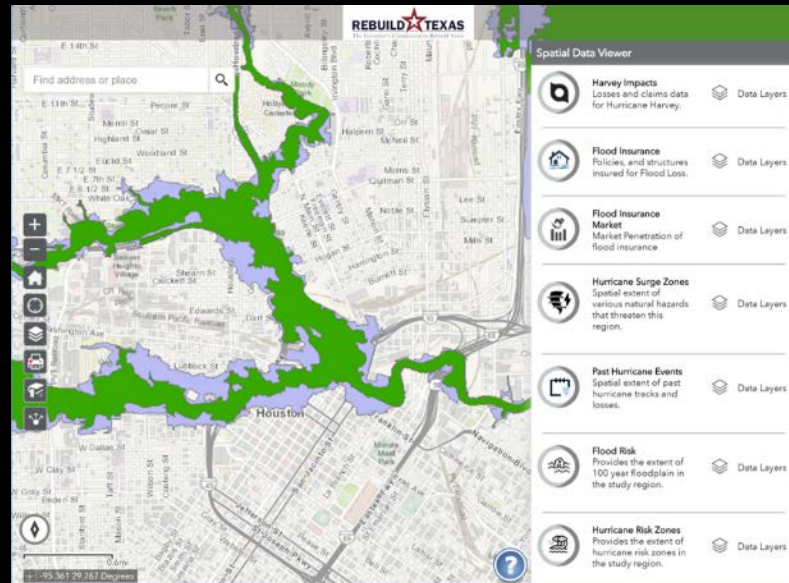
Innovating for Change



1. Data Analytics



2. Visualization



Knowledge

Action

Innovating for Change



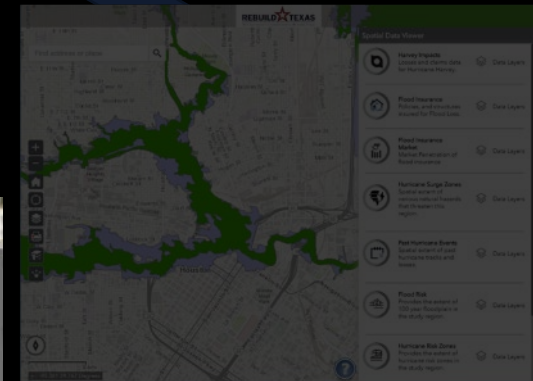
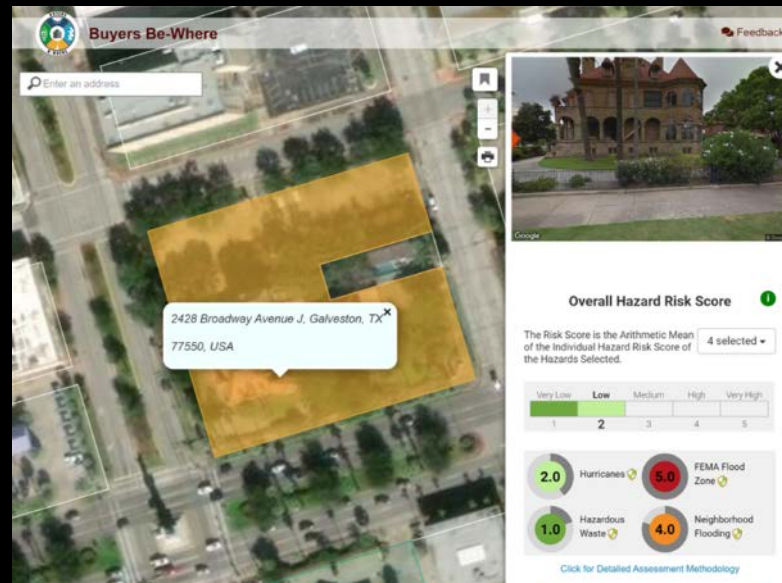
1. Data Analytics

2. Visualization

3. Communication

Knowledge

Action



Innovating for Change



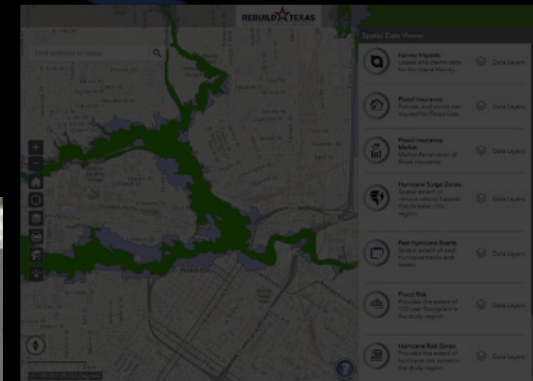
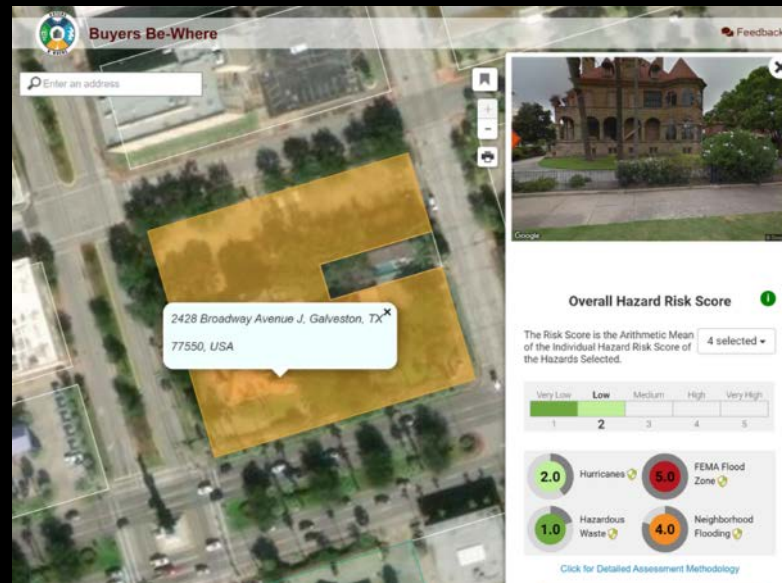
1. Data Analytics

2. Visualization

3. Communication

Knowledge

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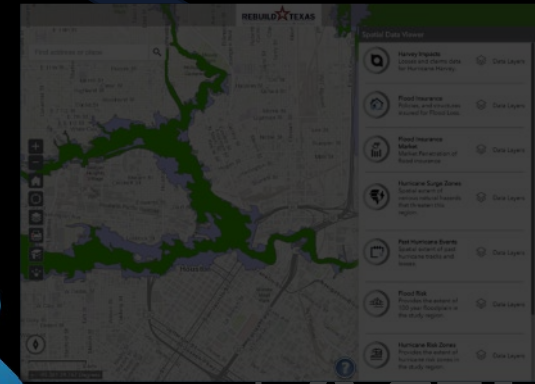
Innovating for Change



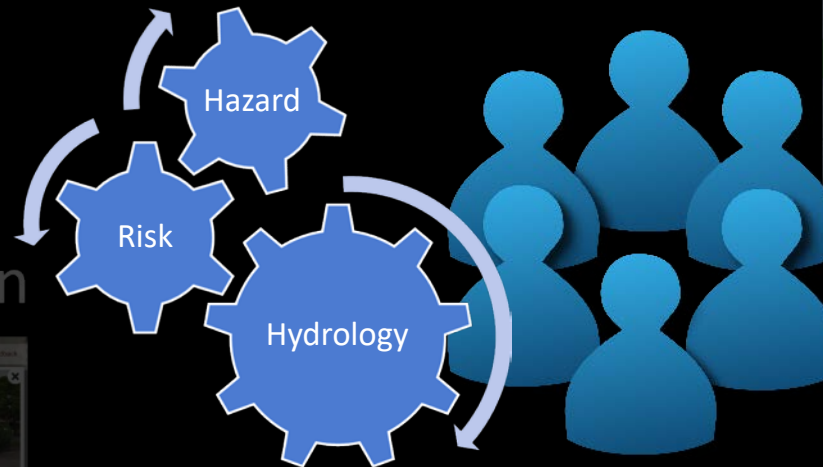
1. Data Analytics



2. Visualization

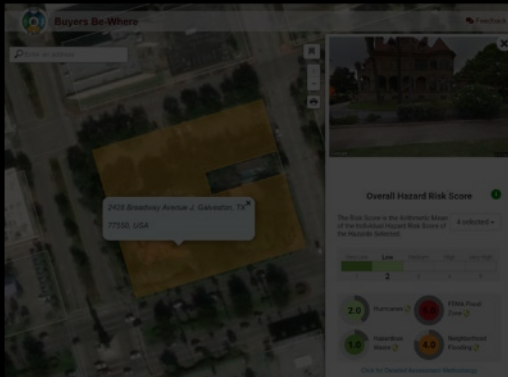


4. Learning



Knowledge

3. Communication



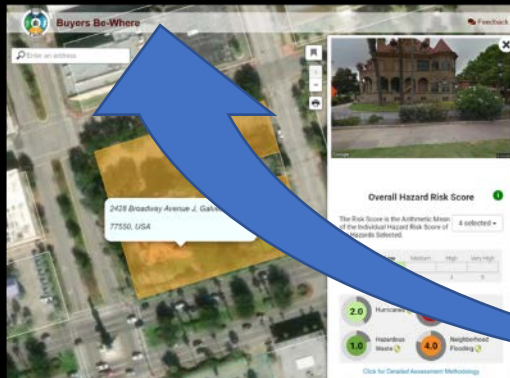
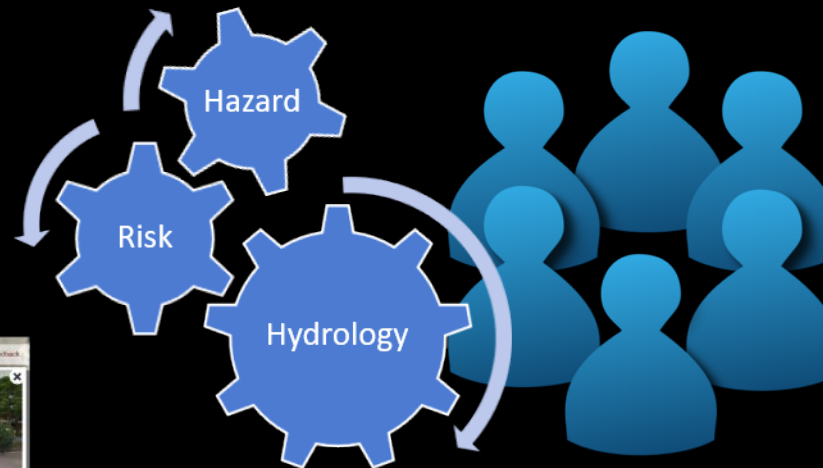
Action

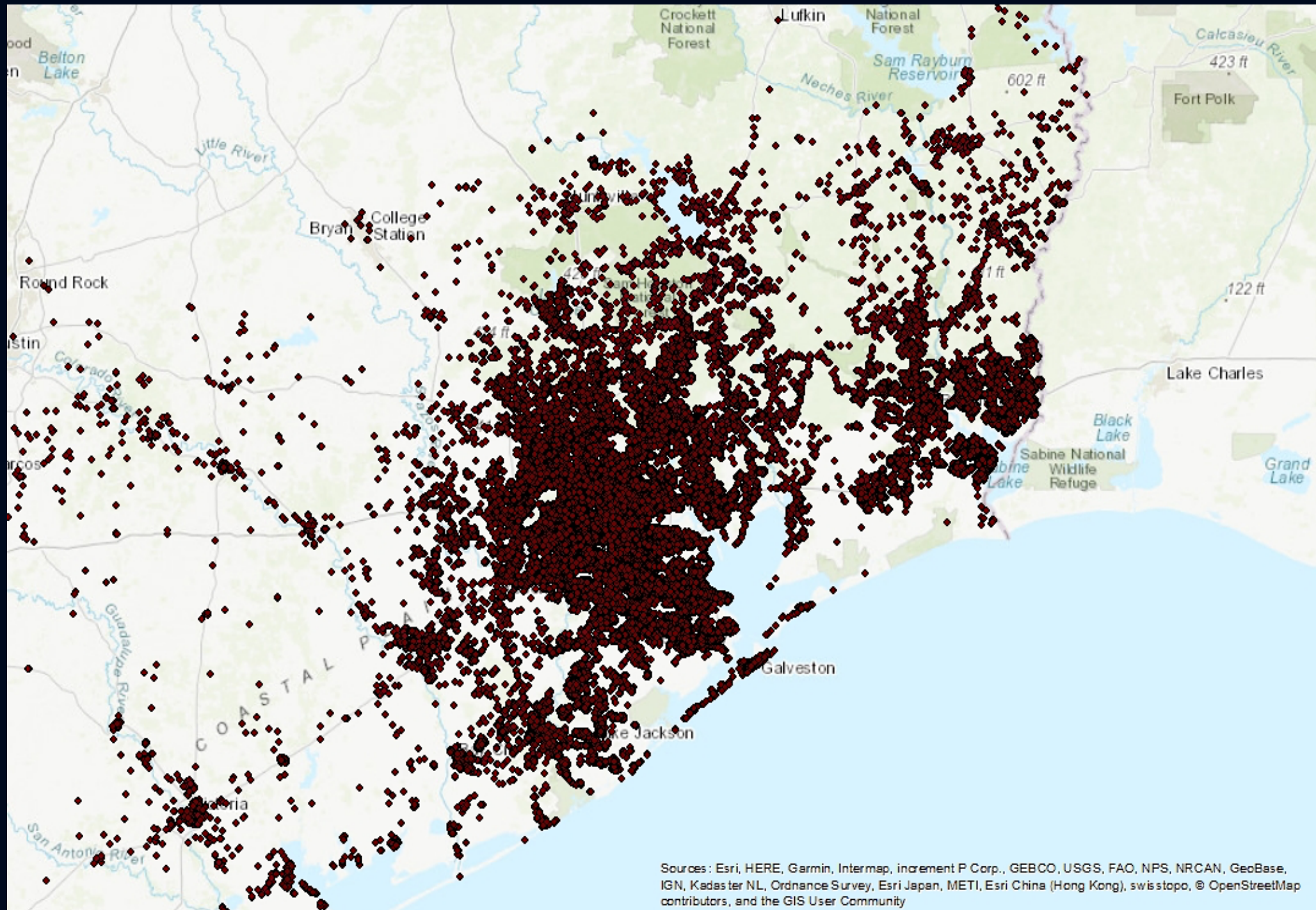
Innovating for Change

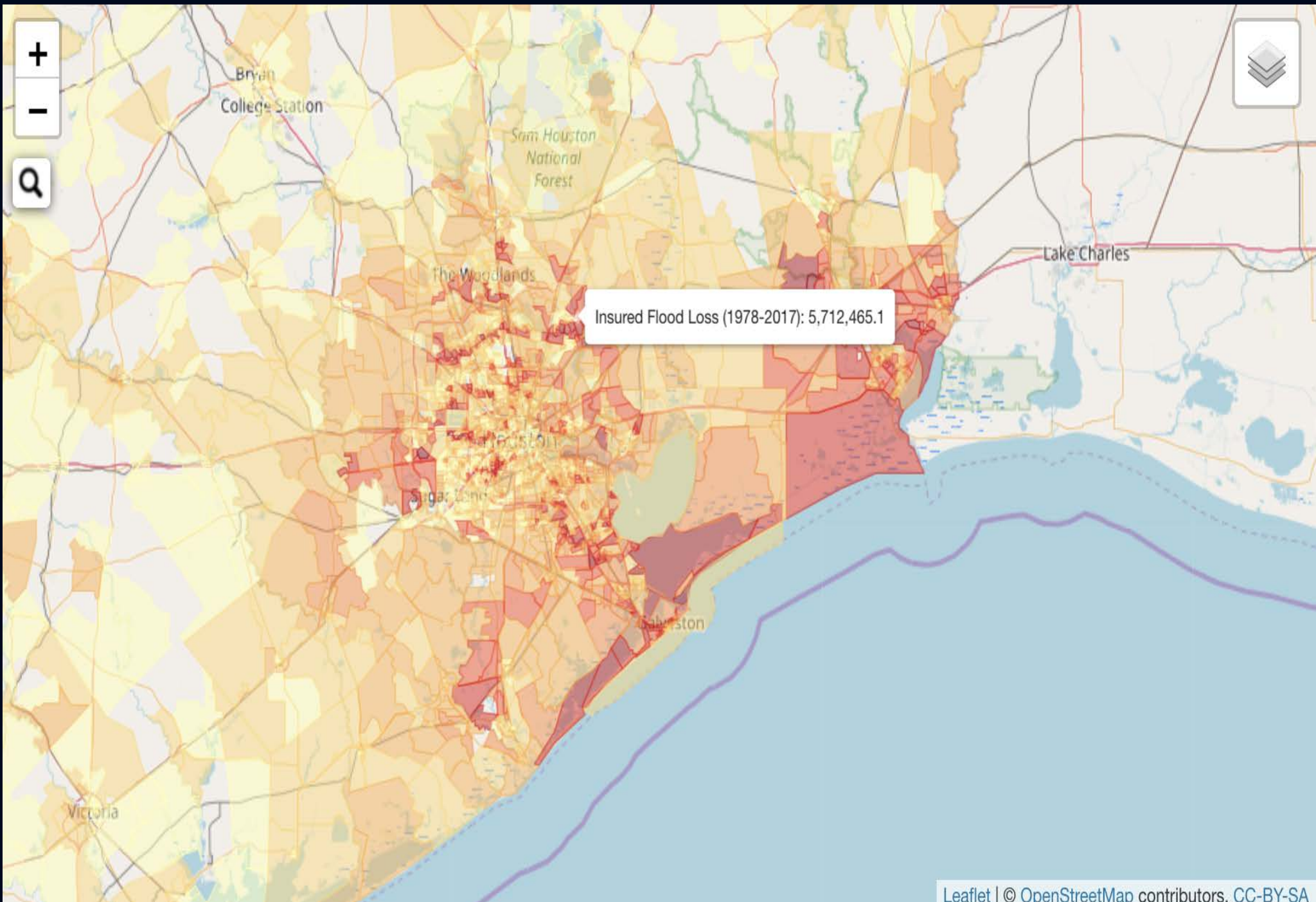


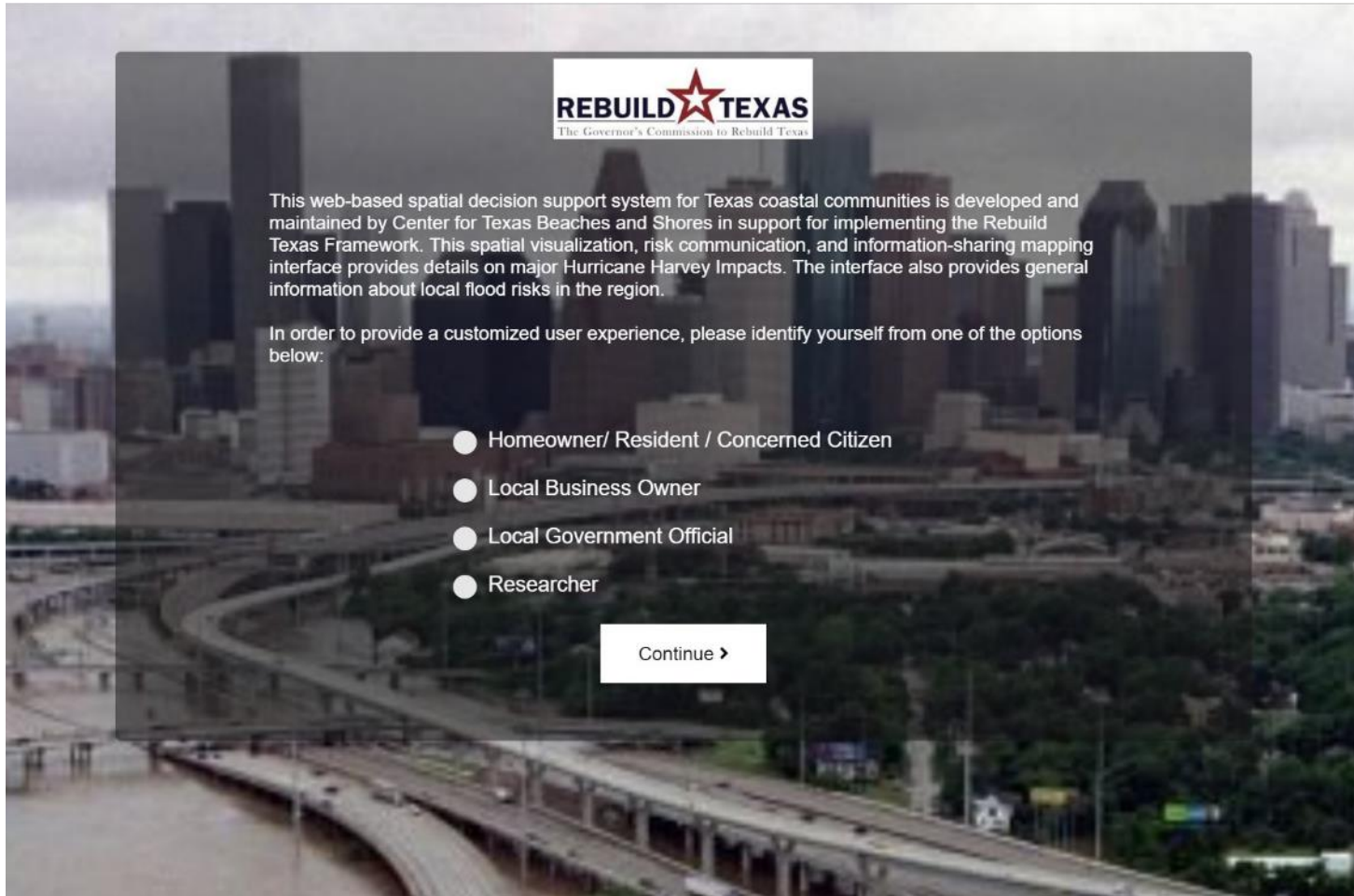
Knowledge

Action







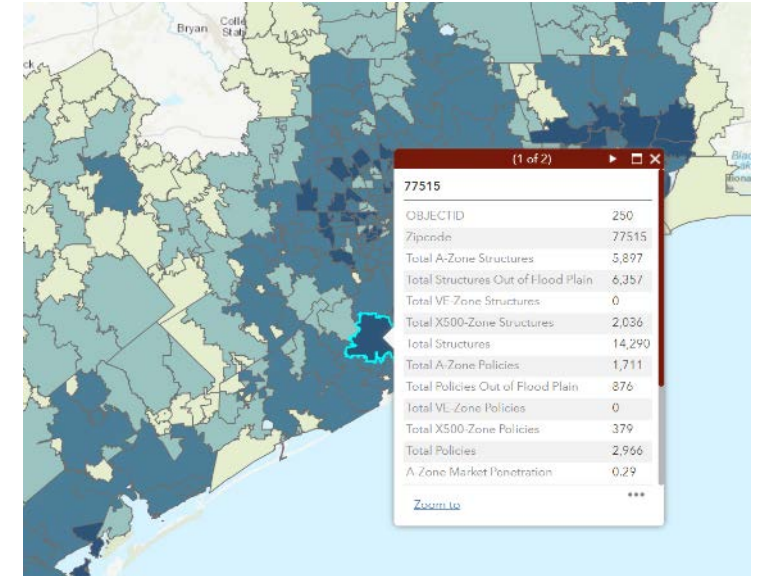
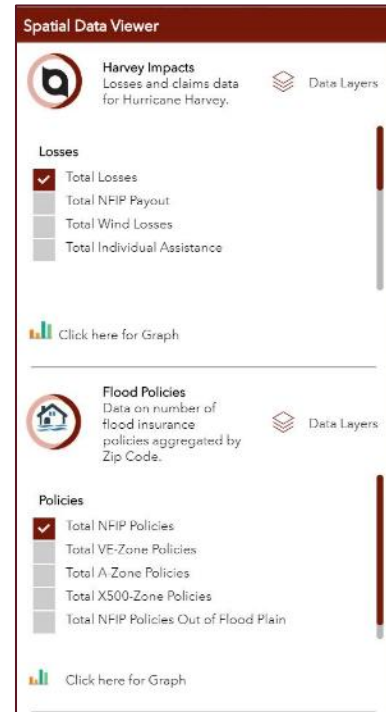
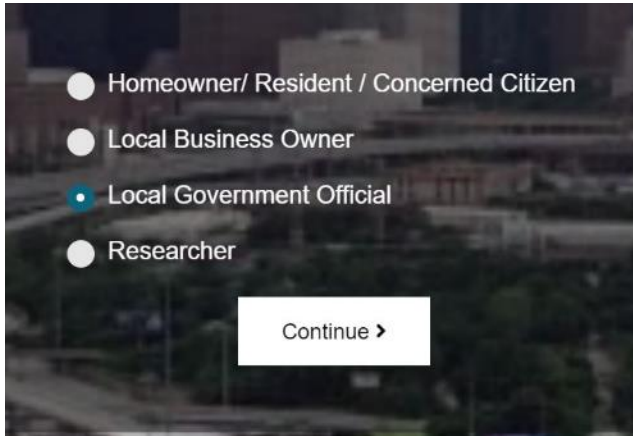


Dashboard 1

Resilient-Texas.com

- Developed in support of the Governor's Commission to Rebuild Texas following Hurricane Harvey
- Highlights key impacts of Hurricane Harvey, as well as general information on local flood risks
- Customized experience based on the user's role within the community

How it Works



Select Role

Choose Layers

Explore Data

Find address or place



Legend

☒ Total NFIP Policies Out of Flood Plain

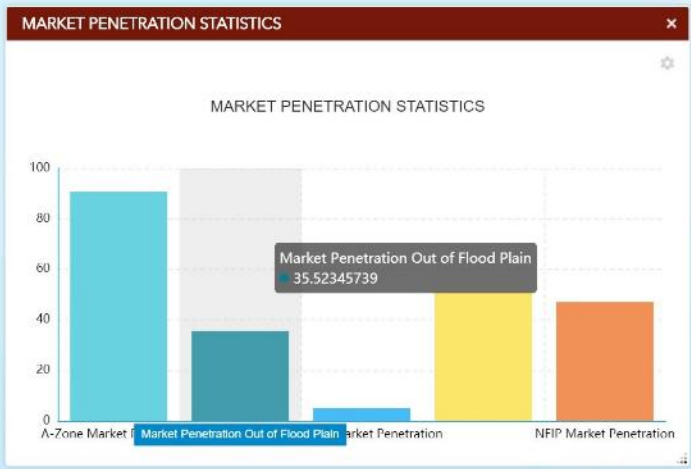
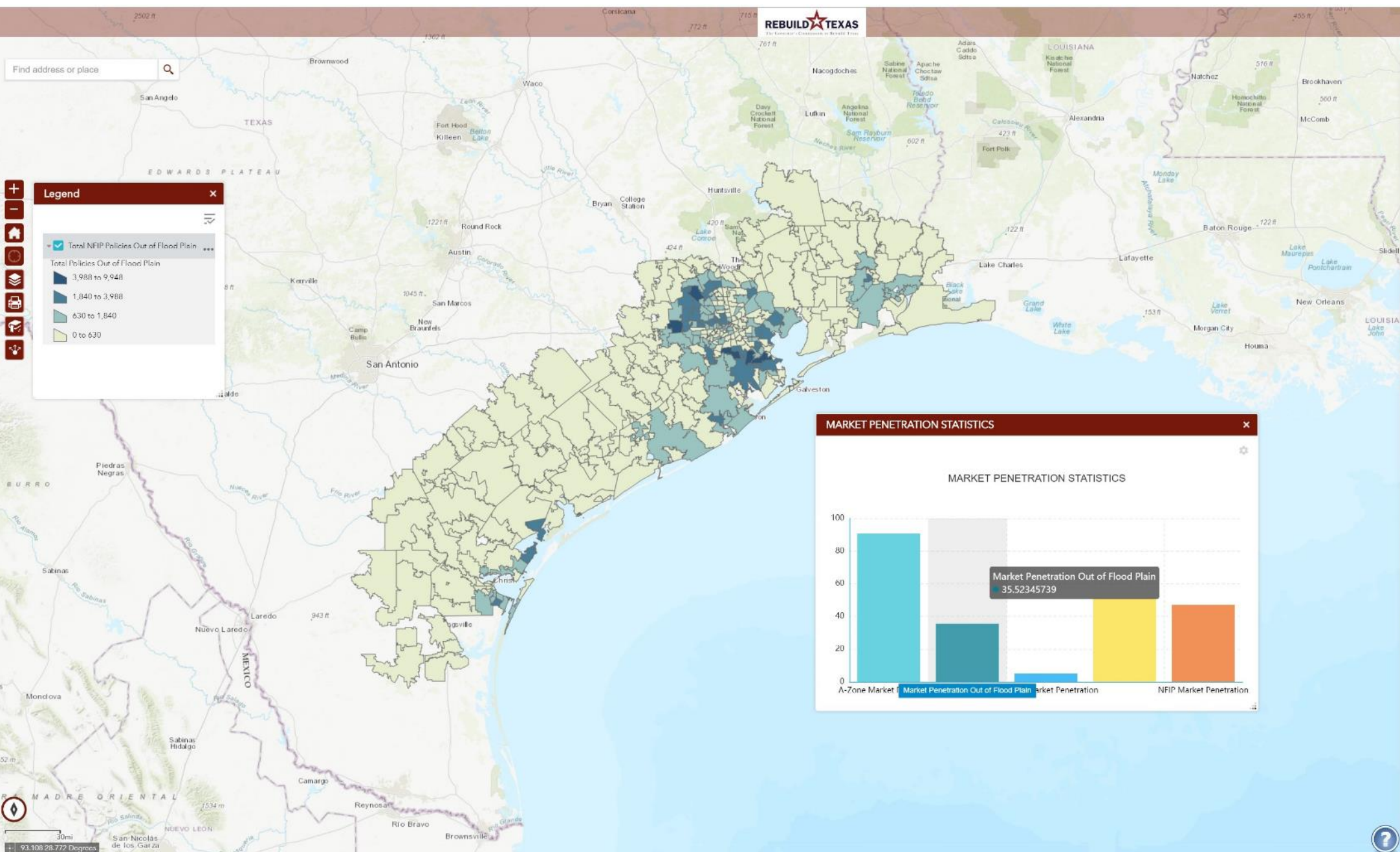
Total Policies Out of Flood Plain

3,980 to 9,940

1,040 to 3,980

630 to 1,040

0 to 630



Spatial Data Viewer

- Harvey Impacts

Losses and claims data for Hurricane Harvey.

Data Layers
- Flood Policies

Date on number of flood insurance policies aggregated by Zip Code.

Data Layers
- Policies

☐ Total NFIP Policies
☐ Total VF Zone Policies
☐ Total A-Zone Policies
☐ Total X500-Zone Policies
☒ Total NFIP Policies Out of Flood Plain

Click here for Graph
- Insured Structures

Date on number of structures with flood insurance aggregated by Zip Code.

Data Layers
- Flood Insurance Market

Market Penetration of flood insurance market.

Data Layers
- Natural Hazards

Spatial extent of various natural hazards that threaten this region.

Data Layers
- Demographics

Population and households as per US Decennial Census Data

Data Layers
- Political Boundaries

Various Jurisdictional Boundaries

Data Layers



Flood Type:

Inland Flood

Storm Surge

Display

COST

SAVINGS

Mitigation Type

ELEVATION

BUYOUTS

Tutorial

This dashboard explores the benefits of buying out or elevating residential homes in reducing major flood damages as well repetitive flood loss. Click on the buttons at the left side of the dashboard to change between costs/savings or elevation and buyouts of residential properties. You can change the budget using the drop down above the map.

BUYOUTS

ELEVATION

Rebuilding Texas: Buyouts

REBUILD TEXAS

Rebuilding Texas: Elevating Structures

REBUILD TEXAS

The analysis in this dashboard apply four major methodological steps in estimating costs and savings from inland and storm surge flooding in Harris and Galveston Counties: (1) hydrologic modelling of Hurricane Harvey and Hurricane Ike, (2) computation of average annualized flood losses and historic flood claims from previous flood events, (3) flood damage estimation to residential properties for selected storm events, and (4) a benefit-cost analysis which compares cost of flood mitigation to savings accrued from the flood damages prevented.

The analysis is at the parcel level and results are aggregated to show estimated costs and benefits at the block group level. Parcels were chosen based on the Benefit/Cost Ratio. Those with the highest benefit/cost are purchased first. Parcels must at least have a 1 Benefit to Cost.

Users should interpret the results with caution and treat the values only as estimates. Decision makers should perform additional analysis to enable them to select the appropriate flood mitigation measures, in addition to a suite of other non-structural flood risk reduction methods that cross jurisdictional boundaries. You may find additional recommendations for flood risk reduction from the [Commission to Rebuild Texas Report](#).

Close

Estimated Geography here

Reviewed by 2011

1.171B

Savings

It represents a 13.06%

Ratio

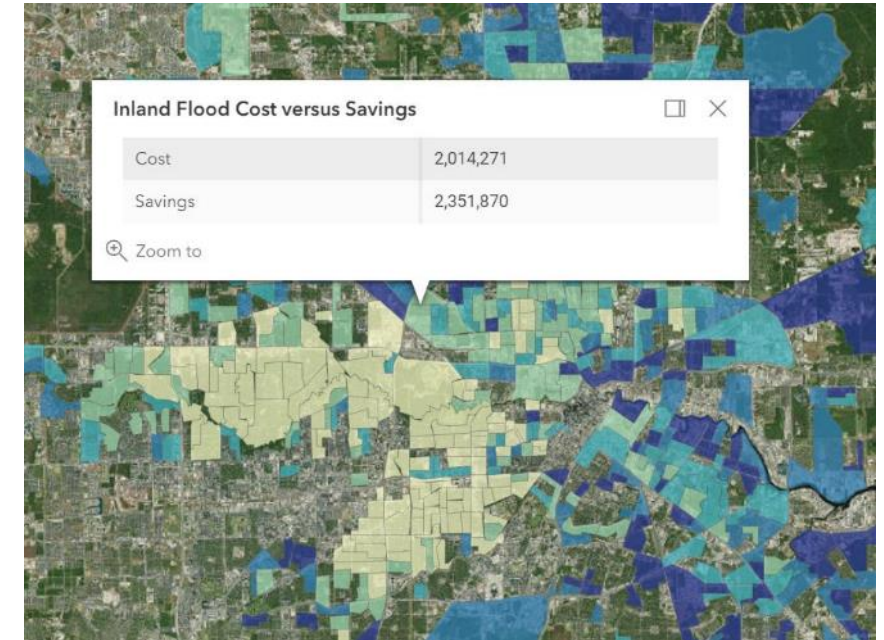
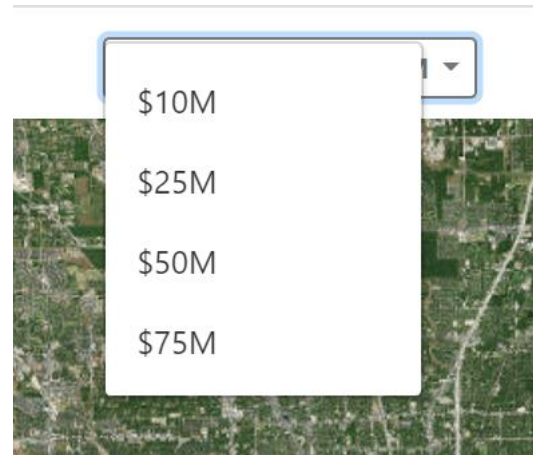
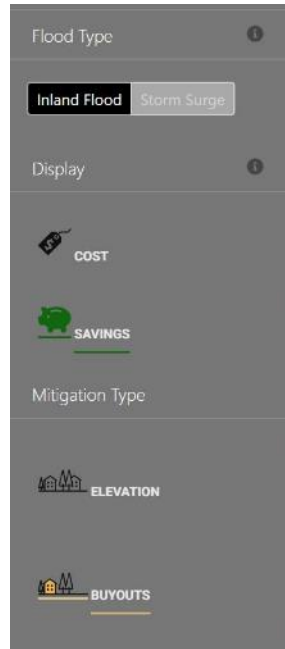
1.5247

Dashboard 2

TexasCoastalAtlas.com/dashboard2

- Developed following the Governor's Commission to Rebuild Texas following Hurricane Harvey
- Explores benefits of mitigation efforts compared to flood losses
- Customize analysis based on type of flooding, mitigation method, and budget

How it Works



Choose Mitigation

Change Budget

Compare Cost vs. Savings

Cost/Benefit for Flood Reduction Mitigation Strategies

Flood Type

Inland Flood Storm Surge

Display

COST

SAVINGS

Mitigation Type

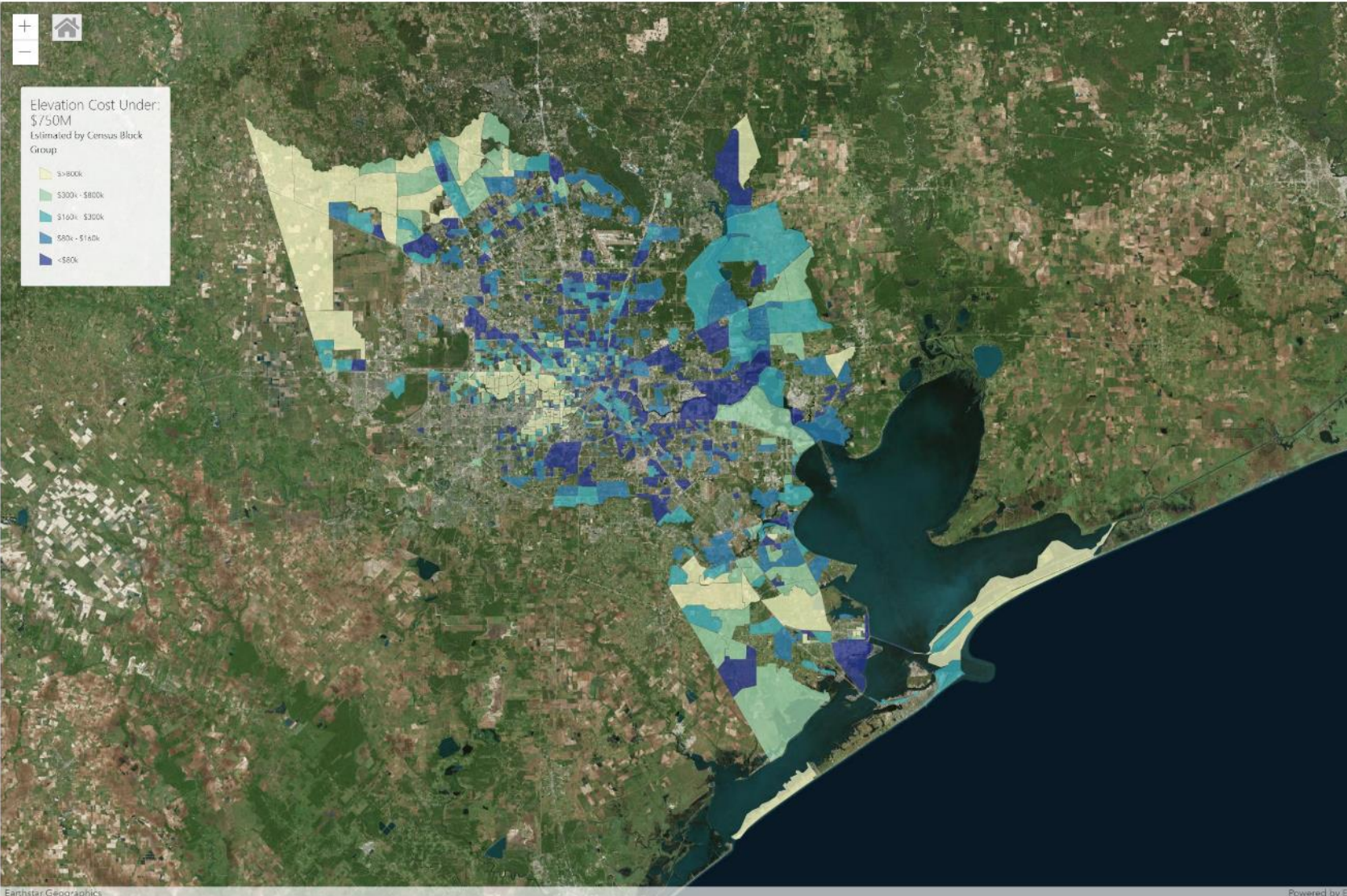
ELEVATION

BUYOUTS

Inland

Mitigation Budget: \$75M

Filter by City:



Total Damages

\$7.171B

Cost versus Savings



Benefit Cost Ratio



-Disclaimer-

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HATHAWAY**
HomeServices

Anderson Properties
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Scott Mendell
InnerLoopLifestyle.com

**DIDN'T
FLOOD**

Buyers BeWhere

Buyer Be-Where is an on-line system to help prospective home buyers and sellers understand their risk relative to other properties in the area. Anyone with an Internet connection can enter a street address and receive a graphic and statistical risk assessment for a specific property. Comprehensive, easy to understand information delivered on-the-fly will provide a critical resource for existing and future property owners interested in making sound and safe investment decisions.

Go To Harris, Texas

Go To Galveston, Texas

Go To Miami-Dade, Florida

Go To Dallas City, Texas

Go To New Orleans, Louisiana

Go To Seattle, Washington

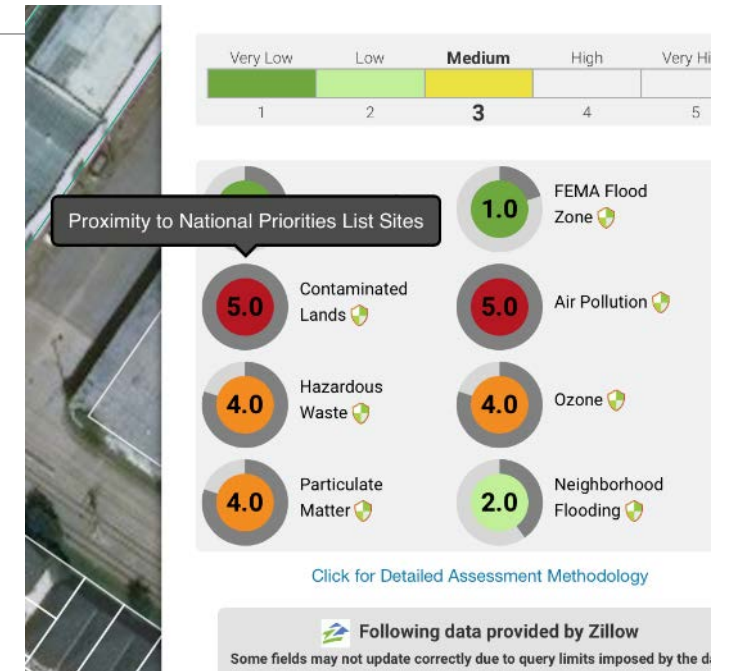
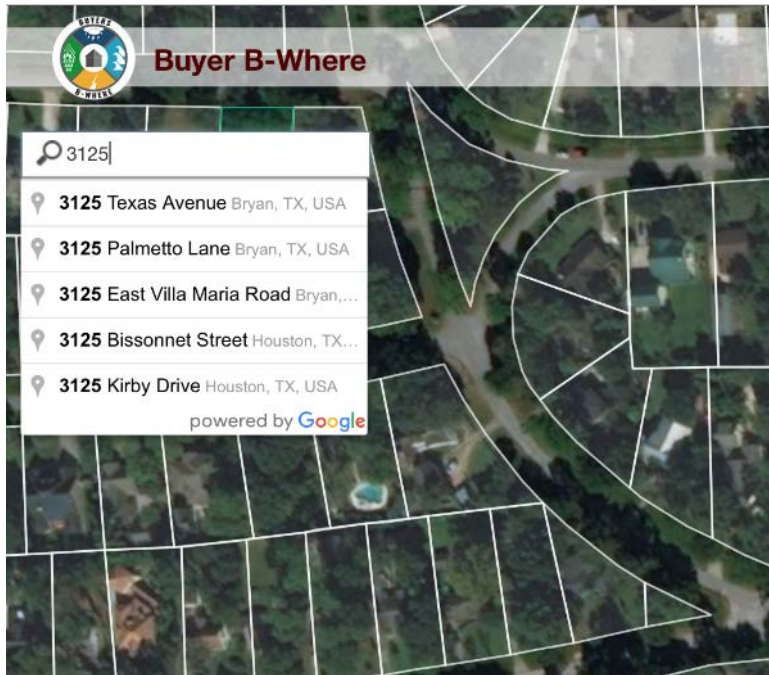
Go To Los Angeles County, California

Buyers Be-Where

Buyers-BeWhere.com

- Offers on-demand and easy to understand information on a range of hazards
- Allows for customizable risk score for individual parcels relative to surround properties
- Provides solutions to mitigate risks and increase potential long-term value

How it Works



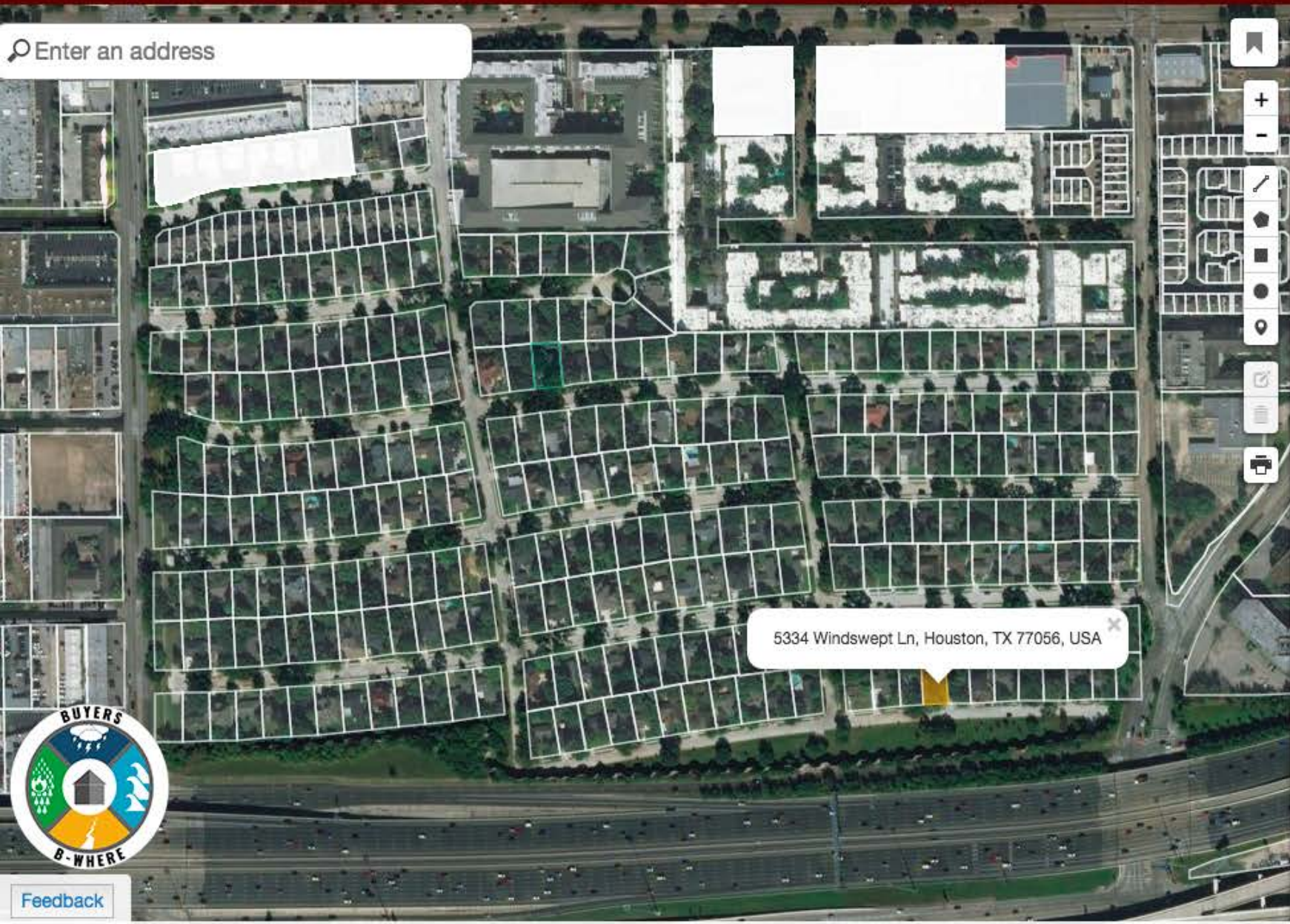
Search an Address

Select the Hazards

Understand the Indicators

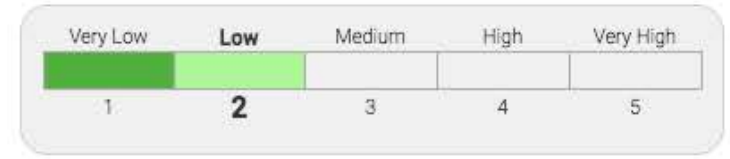


Enter an address



5334 Windswept Lane
Houston, Texas, 77056

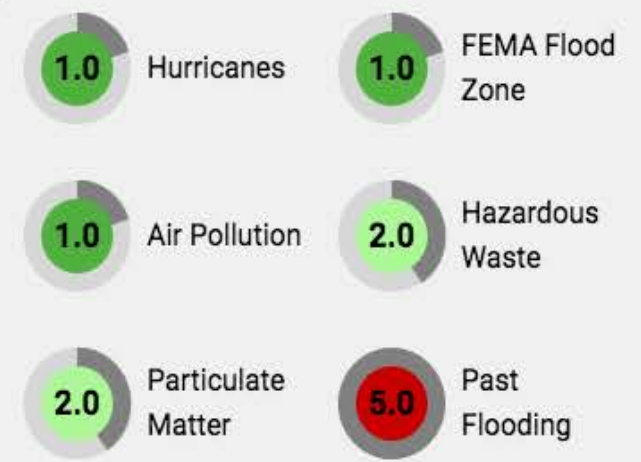
OVERALL HAZARD RISK SCORE [Click for Details](#)



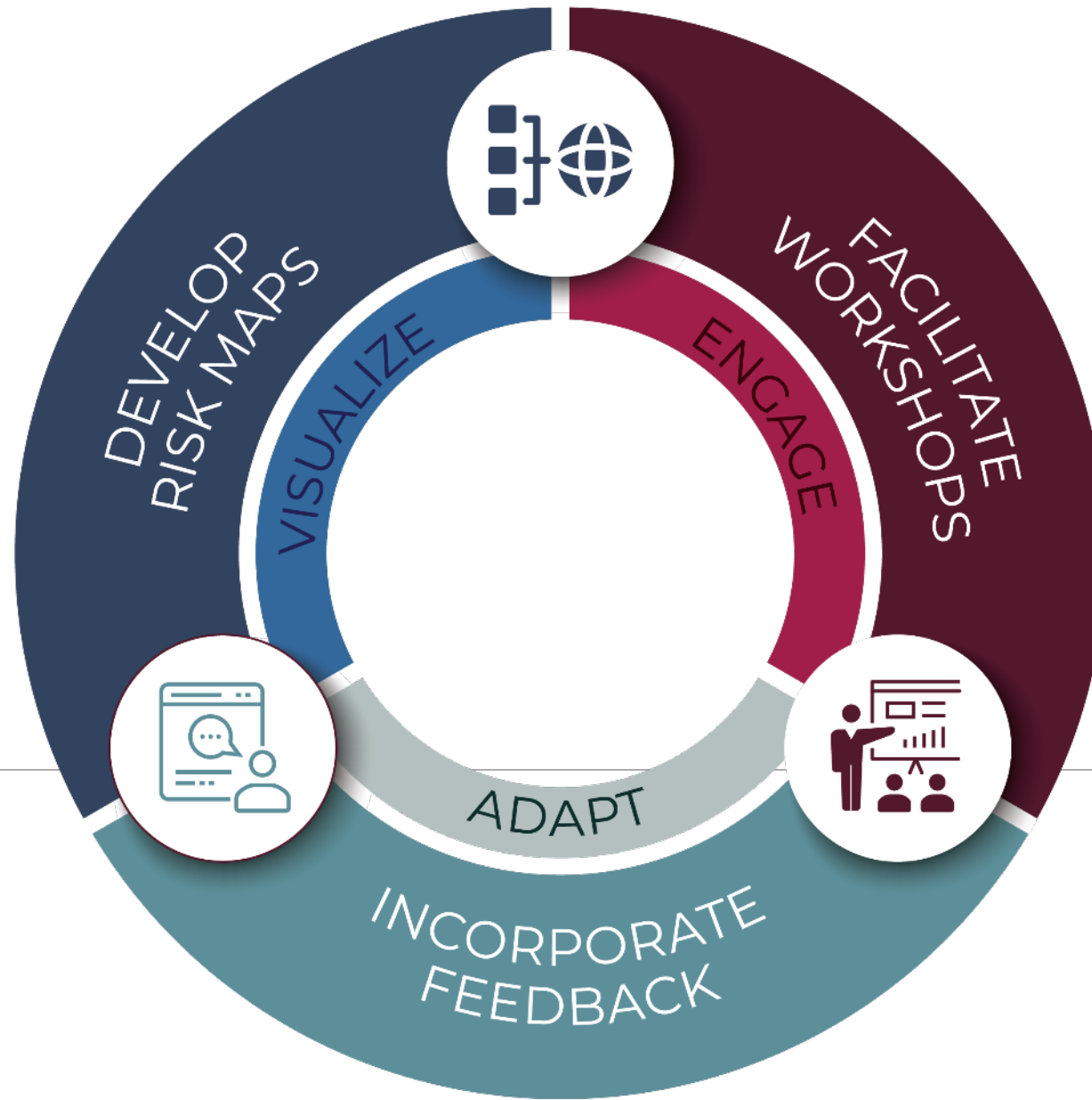
SPECIFIC HAZARD RISK ASSESSMENT [Click for Details](#)

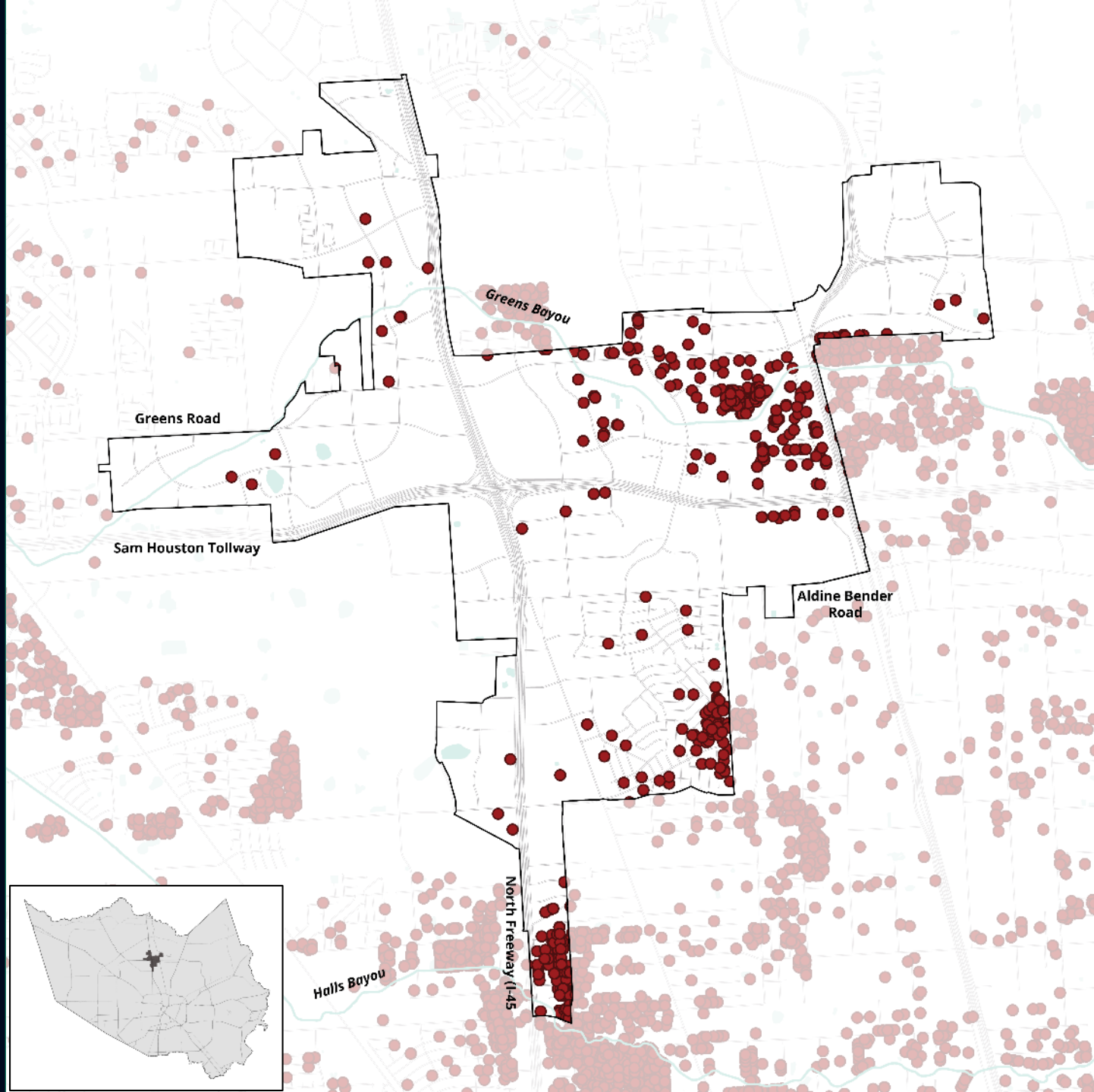
Select Hazard Risks using the dropdown below

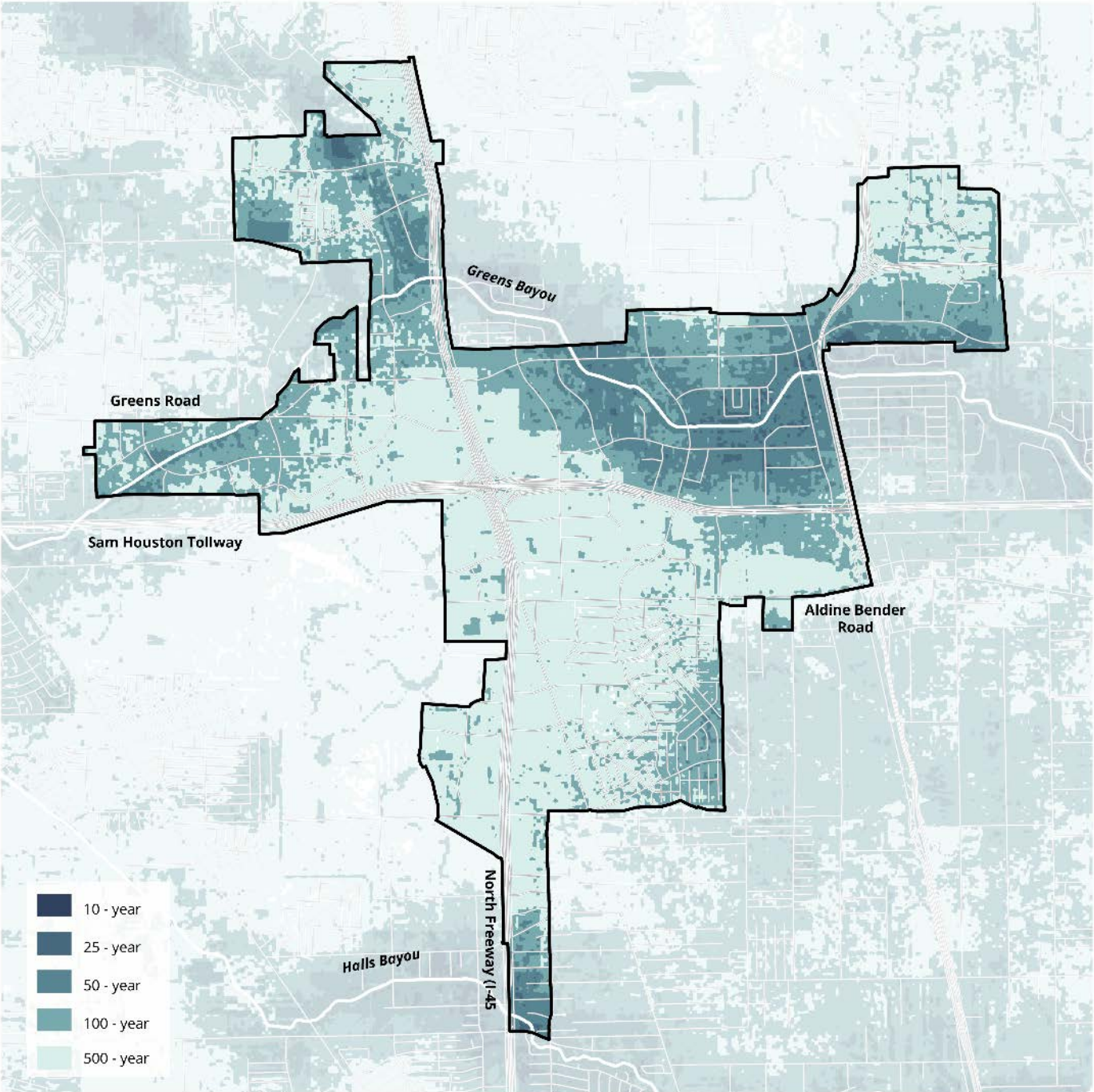
6 selected ▼

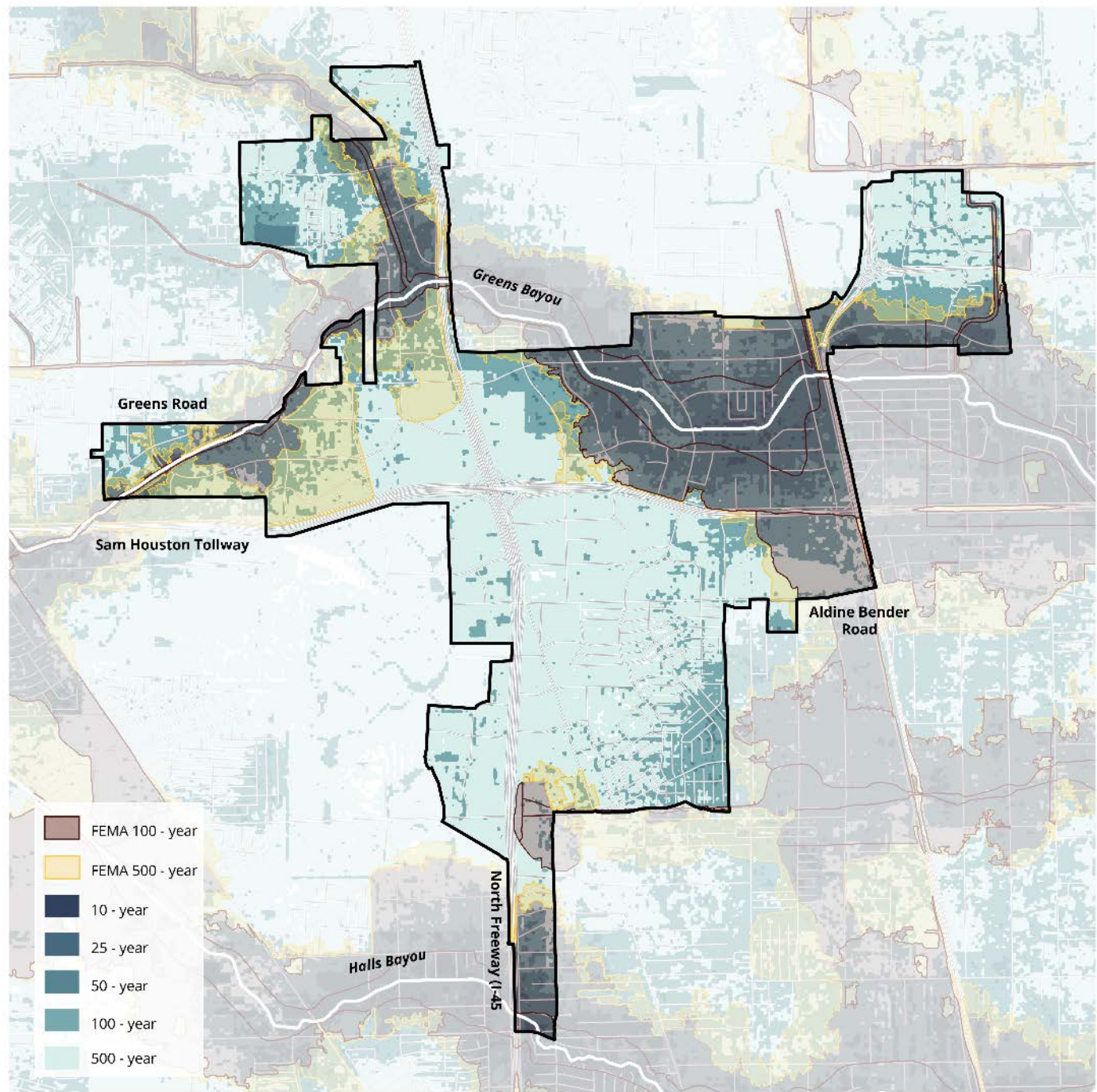


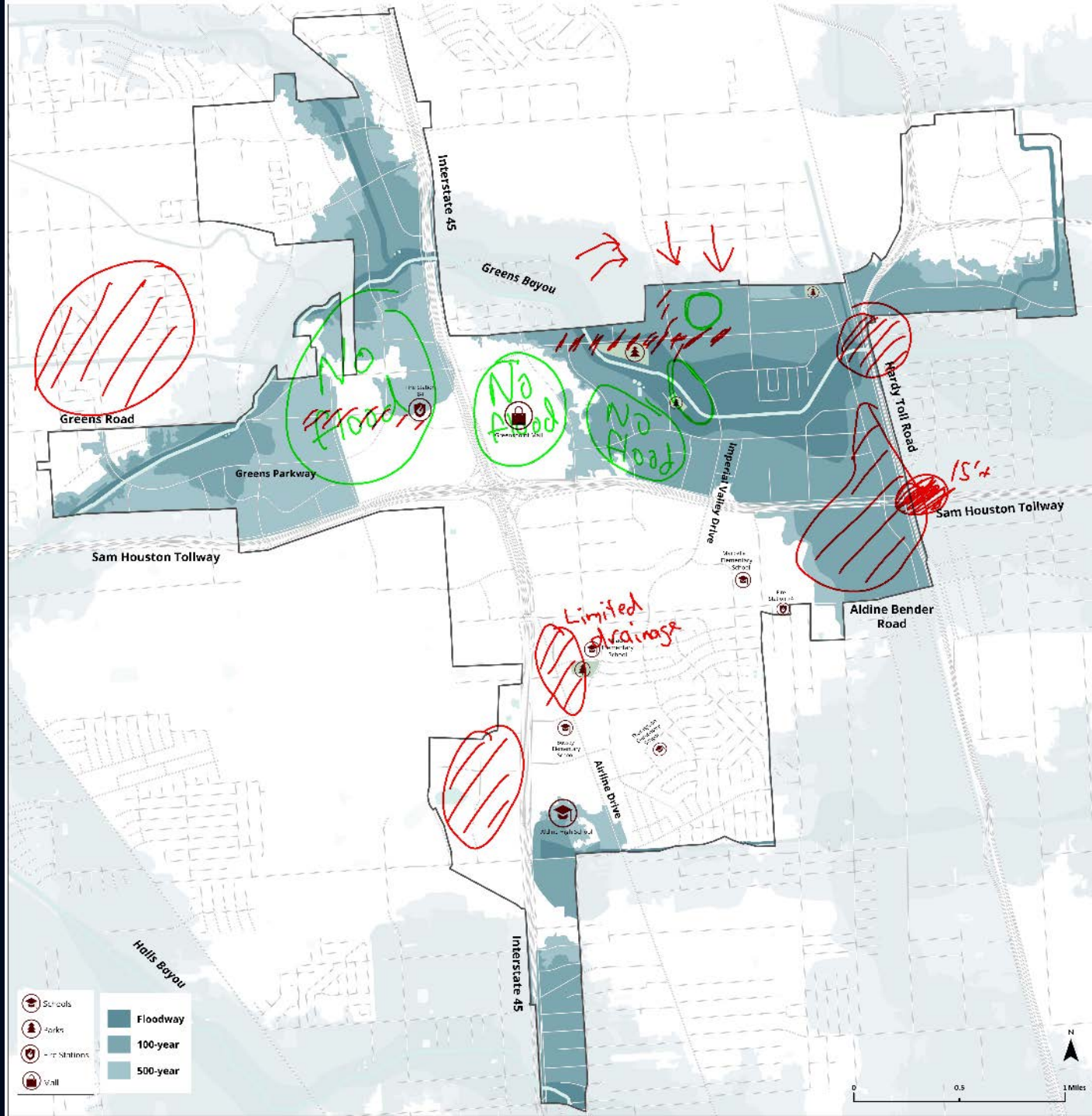
Feedback



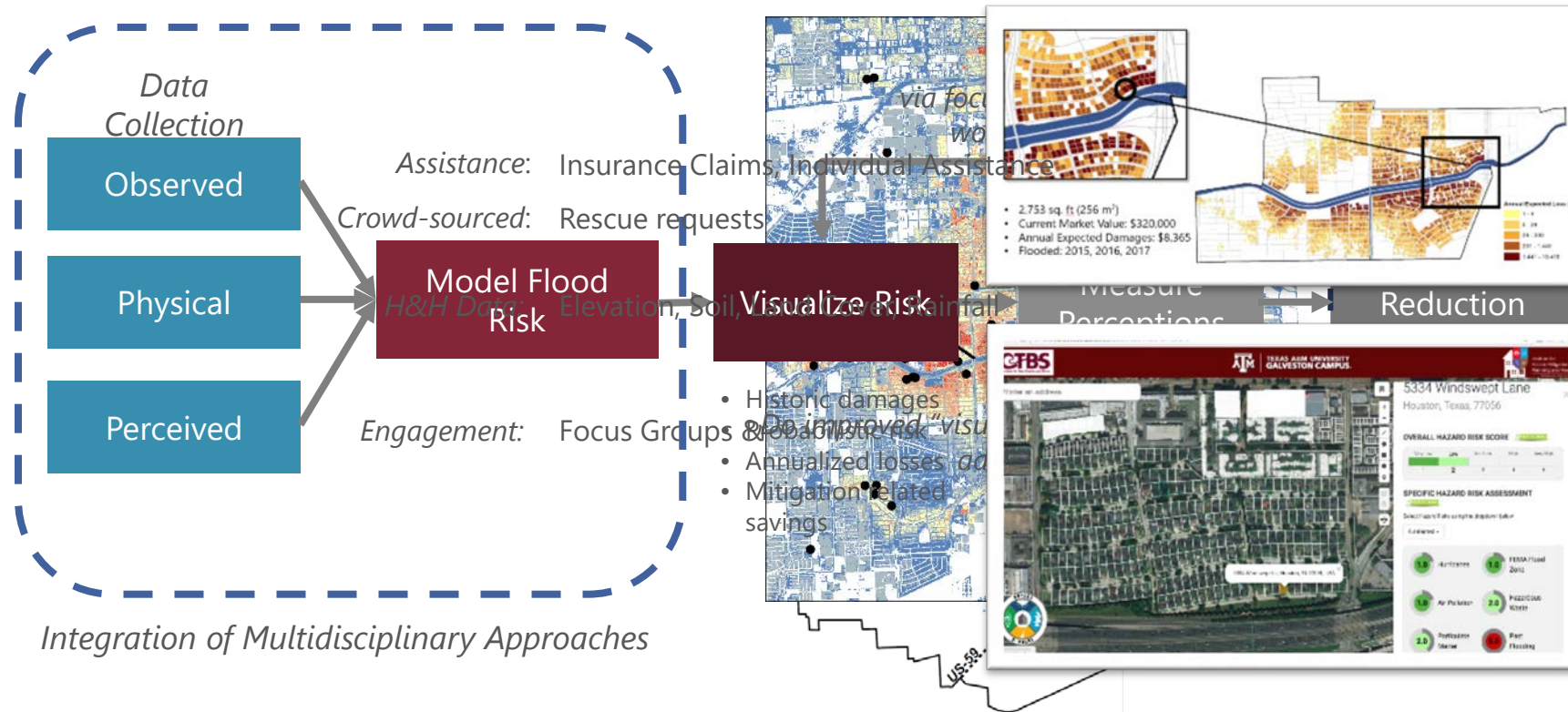








PROCESS OF INNOVATING CHANGE



The logo features the letters 'CTBS' in a large, white, bold, sans-serif font. A stylized blue wave graphic is integrated behind the letters, with the 'C' and 'S' having a more fluid, wave-like shape. The background is a dark maroon color at the top, transitioning into a textured, light blue and white surface that resembles sand or a beach at the bottom.

CTBS

The Center for Texas Beaches and Shores

Dedicated to the protection of the Texas coastal regions and its communities

www.tamug.edu/CTBS